AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A method of applying transforms for simultaneously modifying a plurality of domains of a circuit, including at least one of a ~~boolean~~ Boolean domain, an electrical domain, and a physical domain, concurrently in a design space, said method comprising:

selectively applying a set of ~~more and less~~ less-to-more granular placement and netlist modification transforms separately or in a flexible sequence,

evaluating the impact of the set of modification transforms on the design space,

rejecting evaluated transforms that do not improve the design space, and

repeating the above to create a converging design process flow,

wherein said transforms comprise fine-grained steps to optimize the netlist and placement properties of a design. ~~concurrently.~~

2. (Original) The method according to claim 1, wherein said creating starts from a netlist without an initial placement of said circuit on a chip or from a netlist with an initial placement.

3. (Currently amended) The method according to claim 1, wherein ~~a function of~~ said placement and ~~synthesis~~ netlist modification transforms are decomposed into a set of fine-grained transforms each addressing a specific phase of the placement and synthesis process.

4. (Original) The method according to claim 3, wherein said placement transforms are selectively mixed and matched with predetermined logic synthesis transforms and fine-grained transforms.

5. (Currently amended) The method according to claim 1, wherein a single transform ~~selectively~~ optimizes the physical, ~~boolean~~ Boolean and electrical domains, thus moving the design from a start point to an end point in the design space.

6. (Original) The method according to claim 1, wherein a single fine-grained transform includes multiple objectives and constraints which involve physical placement and logical data.

7. (Original) The method according to claim 1, wherein a partially placed and synthesized design is a starting point of said creating.

8. (Original) The method according to claim 1, wherein said design process flow comprises a single converging flow of successive application of fine-grained operations.

9. (Original) The method according to claim 1, further comprising utilizing an infrastructure of bins, and wherein a timing, congestion and noise analysis is based on the bins.

10. (Original) The method according to claim 1, wherein placement and netlist changes are

performed together in said fine-grained transforms.

11. (Currently amended) The method according to claim 1, wherein said fine-grained transforms are organized together in flexible scenarios to ~~create~~ achieve a design closure process.

12. (Original) The method according to claim 1, further comprising:

at predetermined stages of the process, selectively determining whether to intercept the process and implement any of a plurality of fine-grained transforms.

13. (Currently amended) The method according to claim 1, further comprising:

examining a plurality of domains concurrently in finding an optimum design, said examining comprising creating a sequence of ~~more and less~~ less-to-more granular placement and netlist modification transforms, to create a converging design closure process.

14. (Original) The method according to claim 1, wherein all transforms have a unified view of the placement and synthesis design space.

15. (Original) The method according to claim 14, wherein synthesis, timing, and placement data are concurrently available to all of said transforms, such that said transforms modify a netlist and placement concurrently.

16. (Currently amended) A method of applying fine-grained transformations during

placement synthesis interaction, said method comprising:

(a) creating and updating bins;

(b) applying a plurality of transforms on a bin-based database updated by both placement and synthesis;

(c) updating the bin-based timing, and invoking a synthesis-placement script;

(d) selecting fine-grained synthesis and placement transforms;

(e) invoking selected transforms within said script using a driver; and

(f) applying transforms that change the physical, electrical and ~~boolean~~ Boolean logic design space concurrently.

17. (Currently amended) The method according to claim 16, further comprising:

repeating ~~(A)~~ (a) through ~~(F)~~ (f) until design convergence is achieved.

18. (Currently amended) The method according to claim 16, wherein a design space is moved from one point to another by considering concurrently subsets of fine-grained ~~boolean~~ Boolean transforms, electrical transforms, and physical transforms.

19. (Currently amended) The method according to claim 18, wherein blocks of ~~each of the boolean optimizations, electrical optimizations and physical optimizations~~ the transforms are interspersed ~~together~~ sequentially.

20. (Currently amended) The method according to claim 19, wherein each of said ~~optimizations~~ transforms is represented as a plurality of transformations such that the

~~optimizations~~ transforms are divided and interspersed ~~together~~ sequentially, to examine each of the ~~boolean~~ Boolean, electrical and physical domains concurrently.

21. (Currently amended) A method for applying fine grained transformations during placement synthesis interaction, said method comprising:

creation and updating of bins;

applying the transforms on a bin-based database updated by both placement and synthesis;

updating the bin-based timing;

invoking a synthesis-placement script based on said placement and said synthesis;

selecting fine-grained synthesis and placement transforms;

invoking selected transforms within said synthesis-placement script;

applying transforms that change the physical, electrical and ~~boolean~~ Boolean space concurrently; and

repeating the above until design convergence is achieved.

22. (Currently amended) A system for applying transforms for modifying a plurality of domains concurrently in a design space, said method comprising:

a unit for creating a sequence of ~~more and less~~ less-to-more granular placement and netlist modification transforms,

a unit to evaluate the impact of the sequence of modification transforms on the design space and to reject evaluated transforms that do not improve the design space to create a converging design process flow,

wherein said transforms are fine-grained transforms allowing selective mixing and matching of said fine-grained transforms to optimize the placement of a circuit in a design space.

23. (Original) The system according to claim 22, wherein said unit for creating starts from a netlist without an initial placement of said circuit on a chip or from a netlist with an initial placement.

24. (Currently amended) The system according to claim 22, wherein ~~a function of~~ said placement and ~~synthesis~~ netlist modification transforms are decomposed into a set of fine-grained transforms each addressing a specific phase of the placement and synthesis process.

25. (Original) The system according to claim 24, wherein said placement transforms are selectively mixed and matched with predetermined logic synthesis transforms and fine-grained transforms.

26. (Currently amended) The system according to claim 22, wherein a single transform ~~selectively~~ optimizes the physical, ~~boolean~~ Boolean and electrical domains, thus moving the design from a start point to an end point in the design space.

27. (Original) The system according to claim 22, wherein a single fine-grained transform includes multiple objectives and constraints which involve physical placement and logical

data.

28. (Original) The system according to claim 22, wherein a partially placed and synthesized design is a starting point for said unit for creating.

29. (Original) The system according to claim 22, wherein said design process flow comprises a single converging flow of successive application of fine-grained operations.

30. (Original) The system according to claim 22, further comprising an infrastructure of bins, and wherein a timing, congestion and noise analysis is based on the bins.

31. (Original) The system according to claim 22, wherein placement and netlist changes are performed together in said fine-grained transforms.

32. (Original) The system according to claim 22, wherein said fine-grained transforms are organized together in flexible scenarios to create a design closure process.

33. (Original) The system according to claim 22, further comprising:

a unit, at predetermined stages of the process, for selectively determining whether to intercept the process and implement any of a plurality of fine-grained transforms.

34. (Currently amended) The system according to claim 22, further comprising:

an examining unit for examining a plurality of domains concurrently in finding an

optimum design, said examining unit comprising a unit for creating a sequence of ~~more and less~~ less-to-more granular placement and netlist modification transforms, to create a converging design closure process.

35. (Original) The system according to claim 22, wherein all transforms have a unified view of the placement and synthesis design space.

36. (Original) The system according to claim 35, wherein synthesis, timing, and placement data are concurrently available to all of said transforms, such that said transforms modify a netlist and placement concurrently.

37. (Currently amended) A software system for applying transforms for modifying a plurality of domains concurrently in a design space, said software system comprising:

a module for creating a sequence of ~~more and less~~ less-to more granular placement and netlist modification transforms,

a module to evaluate the impact of the sequence of modification transforms on the design space and to reject evaluated transforms that do not improve the design space to create a converging design process flow,

wherein said transforms are fine-grained transforms allowing selective mixing and matching of said fine-grained transforms to optimize the placement of a circuit in a design space.

38. (Currently amended) A programmable storage medium tangibly embodying a program of

machine-readable instructions executable by a digital processing apparatus to perform a method of applying transforms for modifying a plurality of domains concurrently in a design space, said method comprising:

creating a sequence of fine-grained transforms to create a converging design process flow

wherein said fine-grained transforms optimize the ~~boolean~~ Boolean, physical and electrical aspects of a design concurrently.

39. (Currently amended) A programmable storage medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method of applying fine-grained transformations during placement synthesis interaction, said method comprising:

(a) creating and updating bins;

(b) applying a plurality of transforms on a bin-based database updated by both placement and synthesis;

(c) updating the bin-based timing, and invoking a synthesis-placement script;

(d) selecting fine-grained synthesis and placement transforms;

(e) invoking selected transforms within said script using a driver; and

(f) applying transforms that change the physical, electrical and ~~boolean~~ Boolean logic design space concurrently.